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AUTHOR Brophy, Jere
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ABSTRACT

This paper assesses the value of research, not on its methodology type but on its goal and accomplishments. It outlines an idea for developing a knowledge base capable of informing teacher education program planning and other educational policy decisions. Studies are described that advance knowledge about causal relationships between classroom processes and student outcomes, especially studies that document and describe desirable practices. The paper is divided into the following sections: (1) "Introduction"; (2) "Factors that Contribute to the Value of Research Studies"; (3) "Quantitative Methods"; (4) "Qualitative Methods"; (5) "Shift in Focus from Methods to Questions"; and (6) "Needed Research in Social Studies." (EH)

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THOUGHTS ON THE QUALITATIVE-QUANTITATIVE DEBATE

Jere Brophy
Michigan State University

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This presentation was made as part of a symposium entitled "The Quantitative-Qualitative Debate and its Relevance for Social Studies Education: Still Alive and Kicking or Beating a Dead Horse?" held at the annual meeting of the College and University Faculty Assembly of the National Council for the Social Studies, Chicago, November, 1995.

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My views on research methodology are rooted in the fact that although I take an interest in developing grounded theory, I approach research on teaching primarily from a practical rather than a theoretical standpoint. I prefer to work primarily inductively, by first establishing empirical information about variables and their relationships, then identifying the causal linkages that explain these relationships and developing implications for teachers.

I view both teaching and research as means, not ends. Teaching is action taken to help students make progress toward instructional goals. Research is action taken to answer some question. To evaluate either teaching or research, we need to consider both the importance of their goals and the degree to which they get accomplished. Good teaching is good because it succeeds in helping students attain worthwhile learning goals. Good research is good because it succeeds in answering worthwhile questions.

From this perspective, attempts to argue qualitative versus quantitative research methods make no more sense than arguing the value of hammers versus screwdrivers. To argue the relative merits of tools productively, we need to consider the purposes and goals for which they might be used. Tools offer trade-offs. They are ideally suited for some purposes, usable but not ideal for other purposes, and irrelevant or counterproductive for still other purposes. This is as true for research methods as it is for other tools. Any systematic, clearly described, replicable method is scientifically acceptable, but particular methods are more suited to some purposes than others.

Sensible research planning begins with goals. Presumably, the research is needed because some information is needed--the test of the hypothesis, the answer to a question, or some other knowledge to be generated. Clarifying research goals allow us to identify the kinds of data that we need to achieve our goal. In turn, achieving clarity about needed data allows us to identify

the research methods needed to produce those data. It is only at this stage of research planning, after clarification of research goals and data needs, that we should turn to methodological issues. We then can consider relevant methods with an eye toward their potential for generating the needed data, their cost effectiveness, and other criteria.

I believe that scientists who proceed in this goals-oriented fashion are the most likely to investigate important questions using methods that are well suited to those questions. In the process, they may need to invent new methods, if the needed information cannot be generated using existing methods. These invented methods are then available for use by others, who may apply them, for good or ill, in ways that were not foreseen by their inventors. Scientific advances, especially in young sciences such as research on teaching, often are stimulated at least as much by tool invention as by theoretical developments.

However, researchers sometimes fall in love with their methods. Some of them keep doing the same kinds of studies, even when there no longer are good reasons to do so. This leads to work that is methodologically elegant but substantively trite. Others shift to new questions but cling to their old methods, even when these are not well suited to the questions ostensibly under investigation. People whose methodological commitments are this strong and misdirected are no longer acting primarily as scientists seeking to generate needed knowledge. Instead, they are behaving compulsively for overdetermined reasons, treating a means as if it were an end in itself.

When I assess the value of research, I focus not on its methodological type but on its goals and accomplishments. Was it designed to generate knowledge that would contribute significantly to the literature and carry important theoretical or practical implications? If so, I will be eager to find out

more, both about the methods the authors used to address their questions and the answers they developed. If I don't see much need or reason for the study, however, I am unlikely to pay much attention to it or cite it in my future writings, even if it was elegantly implemented. For example, I would value highly a quantitative study that contributed new information about the trade-offs involved in using different instructional methods, as well as a qualitative study that offered thick description of the instructional beliefs and behaviors of a teacher who had been identified as outstanding using criteria that I found compelling. I would have much less interest in a quantitative study that merely replicated already well-understood relationships or a qualitative study that offered thick description of the beliefs and behavior of a teacher of unknown effectiveness who had been selected for study for no particularly good reason.

Because of my personal interests in developing a knowledge base capable of informing teacher education program planning and other educational policy decisions, I am most interested in studies that advance our knowledge about causal relationships between classroom processes and student outcomes, especially studies that document and describe desirable practices. I am less interested in studies that call attention to problems but do not suggest solutions to those problems, as well as studies that generate information that might be nice to know but is lacking in clear implications for improving education (e.g., statistical trends in various educational indicators, group differences in achievement or attitudes, or developmental trends in children's knowledge presented without consideration of how to stimulate advances through instruction).

Other researchers attach different priorities to the kinds of knowledge that is generated by different types of research. Clearly, value-based

decision making is involved in determining what is needed information that would constitute a significant contribution to the literature. More could be said about the relative value of different educational research goals, but at this point I want to shift from goals to methods. Therefore, most of the subsequent discussion will assume that the researcher's goals are worthy ones, and will focus on methodological issues.

Factors That Contribute to the Value of Research Studies

I believe that three main factors contribute to the value of a research study as a significant contribution to the literature. Two of these are implied in what was said previously and will be mentioned only briefly here. First, there should be a need for the information that the study is designed to generate. We do not need further studies, qualitative or quantitative, to demonstrate that behavior can be shaped through reinforcement or that classroom discourse typically occurs in segments consisting of a teacher question, a student response, and a teacher reaction to that response.

Second, the research methods used should be appropriate--capable of generating the kinds of data needed to address the question ostensibly under investigation. If the question involves establishing cause-and-effect relationships, experimental methods will be needed. If the question involves correlations or other relationships between variables, some form of quantification and a sample large enough to allow for statistical testing will be needed. If the question involves developing deep understandings of how particular practitioners (teacher educators, principals, teachers) approach particular aspects of their jobs, thick description methods will be needed.

Most of the important questions about good practice will require ambitious programs of research that involve multiple studies using these methods

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and many others. Typically, a knowledge base develops primarily through replication of key findings by different investigators using different methods rather than through some quantum effect of a single elegantly designed study. Even after a finding becomes well established as a principle or generalization, research is needed to establish the parameters of its applications and to illustrate how it plays out in particular situations.

We need to appreciate both the strengths and the limitations of various research methods. Elegant correlational studies provide useful information about associations between variables but not about cause-and-effect relationships; elegant case studies of outstanding practitioners provide useful information about what is possible to accomplish but not about the percentage of practitioners who might reach this level and what it might take to get them there. If investigators are determined to answer particular questions, they will need to use research methods capable of producing data that speak to those questions. If they fail to do so, they may produce useful information of various sorts, but not information that speaks directly to the question they wished to address.

Besides considering the need for the information to be generated and the fit between the ostensible research question and the methods used in the study, I believe that a study's value as a contribution to the literature is determined by the sophistication with which the methods are implemented. The methods may be as diverse as survey research, systematic classroom observation, stimulated recall interviewing, or qualitative analysis of instructional materials. These and any other research methods may be implemented on a continuum from very poorly to very well. To illustrate, I will focus on two methods that people frequently have in mind when they talk about quantitative

and qualitative approaches to research: classroom interaction coding systems and thick description methods for studying classroom processes.

In speaking of sophistication factors, I do not refer to the technological features of the data collection instruments or the complexities of the statistics used to analyze the data. Instead, I have in mind the degree to which the investigators bring to bear sound research logic and knowledge of the setting in which the research will be conducted so as to make good decisions about basic sampling, instrument design, and data collection and analysis. Many of these sophistication factors involve the craftsmanship or engineering aspects of being a researcher: developing and perfecting the tools that one uses to do the research.

Well-clarified research questions imply certain sampling requirements that must be met if the questions are to be addressed effectively. For starters, investigators who intend to generalize from their findings need to recruit samples that are representative of the populations to which they wish to generalize. If the study is intended to focus on effective teaching, or to contrast effective teaching with less effective teaching, it will be important to begin with clear criteria of teaching effectiveness and to use these in recruiting the sample.

If the study focuses on curriculum and instruction, it may involve hidden assumptions about teacher preparation and classroom management. For example, the logic of the study might imply that the teachers are knowledgeable about the subject and experienced in teaching it, and also that they are professional enough as individuals and skillful enough as classroom managers to enable them to elicit good cooperation and attention from their students. If the teacher is not the sort of individual that the logic of the study demands, or if what occurs during the periods of observation does not correspond well with what was

supposed to occur, the recorded information will not be valid as data that speak to the questions ostensibly being addressed. Regardless of whether the data are quantitative or qualitative, the investigators will end up with a story about how teachers' unfamiliarity with the content or inability to sustain student engagement negated the intended curriculum and instruction, rather than a story about the effects of the intended curriculum and instruction on students' learning.

Clear research goals also carry implications about the kinds of data to be collected and the contexts or settings in which relevant classroom processes occur. To minimize noise in the system, it will be important to focus data collection and analysis on these relevant aspects of the classroom day or week. If the study deals with mathematics teaching and learning, collect data during math periods; if the study deals with both mathematics and science, collect data during both math and science periods but record and analyze them separately; and so on. Investigators doing process-product or other quantitative studies have sometimes introduced ambiguities into their data by failing to confine their observations of teachers to the most relevant and comparable times and contexts. Investigators doing thick description case studies have introduced ambiguities into their data by trying to record and analyze everything instead of focusing on data relevant to the study's goals.

Quantitative Methods

The best quantitative studies avoid these problems and also display other sophistication factors: Data collection, aggregation, and analysis methods allow for separate analyses of data from different contexts (one can always combine across contexts later if the separation doesn't yield anything significant); to facilitate comparisons across teachers, scores can be expressed not

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only as raw frequencies but as relative frequencies or percentages (e.g., percentage of good answers that were praised, percentage of lessons begun with an overview); patterns of initiation and reaction or other sequential information can be retained in the coding; coding systems can be designed to include distinctions in the quality, timing, or appropriateness of teacher behaviors along with recording of their occurrence; different coding systems can be tailored for different subject matters or types of activities; classrooms need to be observed frequently enough to ensure reliability and validity of measurement data; reporting should include basic descriptive statistics, not just correlations or multivariate data; base rates should be kept in mind when interpreting correlational relationships (e.g., if the data show a positive correlation between teacher criticism of poor work and student achievement gain, but the base rate data indicate that such criticism was rare, it would be misleading to interpret the correlational finding as indicating that "teachers who frequently criticized poor work elicited greater achievement gains from their students.") It is also important for quantitative researchers to report findings for each variable considered individually rather than only for cluster or combination scores. The latter approach masks potentially useful information and may even negate the value of the study (as has happened when cluster scores included subsets of classroom process variables that correlated in opposite directions with student achievement gain).

Qualitative Methods

Concerning qualitative research, leaders in educational ethnography and thick description methodology have developed important guidelines for using triangulation and other methods for ensuring the reliability and validity of descriptive data. I would add the following, based on my analysis of the

reasons why I have or have not found various qualitative studies useful. Most of these reflect problems with the goals or logic of the study rather than with the scientific acceptability of the data.

First, qualitative studies ought to be planned to develop information that educators will find needed or useful. Ethnography for its own sake usually does not do this, but thick descriptions of practices that are rich in educational policy or teacher education program implications are very valuable. These usually are developed when the investigators ask educational rather than anthropological questions. It also helps if the study is planned and its findings are interpreted with awareness of the full range of educational research, not just educational ethnography.

Second, don't lose the forest for the trees. Focus on data of interest to the question under investigation, in the original data collection, in subsequent analyses, and in reporting the findings.

Third, incorporate relevant quantitative data (e.g., if the study deals with differential teacher response to male versus female students during public discourse, the report might include tables showing the numbers of different types of questions directed to boys versus girls, the percentages of their responses that were praised and criticized, and so on). Thick description data also offer opportunities for microanalyses of the timing of events and other forms of data presentation that are not easily classified as either quantitative or qualitative. For example, Alton-Lee, Nuthall, and Patrick (1993) used fine-grained analyses of the timing of classroom events to support their resistance theory interpretations of minority students' disruptive behavior. They showed that such behavior tended to occur immediately following events that underscored the Eurocentric nature of the historical content being discussed in the class.

Fourth, I find more value in reports that not only describe what the teacher does, but critique it--noting what is done well or poorly, and with what effects on students. Such reports document the teacher's thinking but do not automatically assume its validity. They treat teachers as informed professionals whose views are worthy of respectful attention, but also recognize that some of these views are misinformed, defensively distorted, or otherwise invalid.

Fifth, I find qualitative reports more valuable when they consider student effects on teachers as well as teacher effects on students, especially when focusing on gender, race, or social class issues. Many qualitative investigators, especially those heavily into critical theory notions, depict teachers as proactive and powerful socializers of students into an oppressive system. This ignores a great deal of other research suggesting that teachers not only are much less powerful than that but often act out of fear of losing control of the class, and that much of what they do is better interpreted as responsive behavior forced or at least elicited by student initiated actions than as proactively initiated teacher effects on students.

Sixth, I find qualitative reports more valuable when, along with describing the specific, they consider the potentially generalizable. What generalizations about life in classrooms or principles of good teaching are suggested by the study, at least as hypotheses? Qualitative researchers tend to take offense when they hear other researchers respond to their work as "just stories," usually because they take this as evidence that their work is being rejected as unscientific. My impression, however, is that this comment usually expresses, not the perception of a lack of scientific method, but the perception of a lack of significant, generalizable findings emerging from the study.

In other words, when critics say "It was just a story," what they really mean is "It was a rambling story that had no moral."

Finally, I find qualitative reports more valuable when they point to and thickly describe desirable practices rather than merely bemoan practices that they view as inappropriate. I would be even more pleased and impressed, of course, if the investigators mounted follow-up experimental studies designed to test their inferences about how to improve teaching. I think that they have some responsibility to do this if their work emphasizes policy advocacy rather than mere description of observed practice, and especially if the feasibility or advisability of the policies they advocate may be questioned on the basis of existing data or wisdom of practice.

Shift in Focus From Methods to Questions

Both quantitative and qualitative methods involve interpreting classroom processes. Quantitative methods offer the opportunity to use inferential statistics, but they run the risk of distorting the meanings of observed events by forcing them into categories that they don't really fit, stripping away potentially important contextual qualifications, or aggregating data across different contexts in ways that create scores that have convenient statistical properties but ambiguous meaning and questionable comparability. Qualitative methods offer the opportunity to retain the coherence of the story, but they run the risk of attributing events to personal rather than situational causes, imposing the observer's agenda in recording and interpreting events, and developing conclusions based on what may turn out to be an unrepresentative case. In developing ways to guard against or compensate for these risks, quantitative investigators have begun to take better account of context and to develop ways to retain some of the continuity of the classroom interaction they record.

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Meanwhile, qualitative researchers have begun to do more purposeful sampling, to use triangulation and other methods of grounding and testing their interpretations, and to incorporate numerical data representations into their analyses.

When done well, both methods reveal thoughtful efforts to record and interpret data in ways that reflect an educator's perspective in separating figure from ground, determining what is central versus peripheral, and identifying the probable cause-and-effect mechanisms that might explain the relationships observed. The more sophisticated educational research being conducted currently uses multiple methods and takes into account a broad range of factors including the purposes and goals of the instruction, curriculum content and materials, lesson and activity formats, teacher and student behavior and interactions, the classroom climate and other social and affective factors, and anything else that might be relevant to the questions addressed. The resulting richness and diversity of data go well beyond what is usually implied in discussions of quantitative and qualitative methods. As an example, see the study by Turner (1995) on situated motivation in literacy instruction, which won the International Reading Association's outstanding dissertation award for 1992-93.

Over the past 15 or 20 years, the qualitative versus quantitative debate has receded in intensity and become transformed into more productive discussions. One reason for this has been increasing recognition that methods cannot be debated independently of the purposes to which they are to be applied, so that the formulation "qualitative versus quantitative methods" is an oversimplified misframing of the question. A second and more important reason why this debate has receded is that we have moved past it. By "we," I mean those of us who came into education from another discipline, bringing our disciplin-

ary purviews and tools with us. Those of us who came in from psychology or sociology tended to bring a primarily quantitative tools; those who came in from anthropology tended to bring primarily qualitative tools. Some researchers from these disciplines have collected data in classrooms but remained primarily psychologists, sociologists, or anthropologists. Others, however (and I include myself in this group), have gradually made a transition, shifting from their former discipline to education as their primary identification. In the process, they have begun adopting educators' purviews and addressing questions that are primarily educators' questions, not social scientists' questions.

As a result, education has developed and coalesced as a domain of scholarship and research in its own right. It is informed by the social sciences but has begun to accumulate its own knowledge base and research paradigms, comparable to medicine with respect to the biological sciences or engineering with respect to the physical sciences. This is resulting in the generation of much more knowledge that has validity for and is directly relevant to the concerns of educators. As these developments progress, we can look forward to increased emphasis on studying significant educational questions using whatever methods are best suited for addressing these questions (usually these will be multiple methods), and less research that is easily classified as quantitative or qualitative or as educational psychology, sociology, or anthropology. In my view, this is all to the good, and long overdue.

Needed Research in Social Studies

Participants in this symposium were asked to identify types of research that are particularly needed in social studies. I will respond to this request

based on my own priorities, although I encourage any research that informs decision making about policy and practice in social studies education.

Concerning traditional forms of research that subsume old qualitative versus quantitative arguments, I believe that social studies education would benefit from more process-outcome studies. However, I do not mean the kinds of process-outcome studies that were done 20 years ago, when processes were measured primarily with frequency counts aggregated across contexts and without adequate consideration of instructional goals, and outcomes were restricted to standardized tests. Instead, I mean quasi-experimental studies of the trade-offs involved in implementing coherent models of curriculum and instruction. Process measurement would be informed by thorough knowledge of the curricular purposes, content sources, and instructional methods in the model or models being studied, and would include thick description of their implementation that afforded opportunities for analyzing the coherence of the instruction and the degree to which it was congruent with the model, in addition to more conventional analysis of process-outcome relationships. The outcome measures would include multiple and authentic assessments focusing on the major goals of the instruction, including not only knowledge goals but skill, value, and citizen participation goals (to the extent that these were included among the intended outcomes). The ultimate payoff of this kind of research would be a knowledge base composed of thick description of what is involved in implementing models known to be effective as vehicles for attaining their stated goals, along with information about the trade-offs embodied in selecting these models (i.e., cost-benefit considerations, foregone opportunities to pursue alternative goals).

Various forms of research and scholarship, much of it less traditional than the kinds of studies that education has borrowed from psychology,

sociology, and anthropology, is needed to inform the development of instructional models. Curricular questions cannot be resolved through purely empirical methods because they involve value questions. However, curricular arguments always contain implied assumptions that can be tested empirically. These include readiness assumptions (i.e., that students at a given grade level are ready to learn particular content) and transfer assumptions (i.e., that mastery of such content will enable the students to handle certain life situations effectively). I think it is important for social studies educators to clarify and test the empirical claims embedded in the rationales for curricular models.

I have been pursuing this kind of work with respect to curricular models that emphasize connecting with students' existing knowledge and experience and engaging them in actively constructing new knowledge and correcting misconceptions. This approach presupposes the availability of a knowledge base describing what children typically know (or think they know) about the content taught at their respective grade levels. Curriculum developers and teachers then can use this information as the basis for developing instruction that both builds on the students' existing valid knowledge and addresses their misconceptions.

In mathematics and science, parallel knowledge bases have been developed by interviewing students before and after they experience instructional units. I believe that similar work is needed in social studies. In collaboration with Bruce VanSledright, I have conducted such research at the fifth-grade level on students' knowledge and thinking about U.S. history (Brophy & VanSledright, 1996), and in collaboration with Janet Alleman, I am currently collecting information about the knowledge and thinking of students in the primary grades (K-3) concerning topics typically taught in social studies in those grades

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(especially cultural universals such as food, clothing, transportation, occupations, families, communities, government, etc.).

In what we call our developmental studies, large samples of students stratified by gender, achievement level, grade level, and socioeconomic status of their school districts are being interviewed to provide information about developments across age and grade in children's knowledge and misconceptions about these topics. In what we call our educational studies, students being taught experimental units based on instructional plans that we have developed are interviewed before and after the units to determine the effects of the instruction on their entering knowledge and thinking.

We think that many more of these educational studies are needed. They involve theoretically based determination of significant goals and key ideas suitable for teaching at the grade level, review and synthesis of research on content vehicles and instructional methods that might be used to teach content clusters structured around the key ideas, development of units designed to teach these topics from a social education perspective, and cycles of testing and revision that include the rich and varied measurement of processes and outcomes described previously. Again, the ultimate point is to design coherent models of effective social studies instruction, perfect them through testing and revision, and in the process collect data that include thick description of effective practice and information about the trade-offs involved in opting for the model instead of one of its recognized alternatives.

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